



Langley Research Center

**LPR 1740.6**

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## **PERSONNEL SAFETY CERTIFICATION**

**National Aeronautics and Space Administration**

**Responsible Office: Office of Safety, Security, Environment, and Mission Assurance**

## **PREFACE**

This Langley Procedural Requirements (LPR) sets forth qualification and training requirements for certification of personnel to handle engineering models, ground support equipment, Space flight test and research articles, test and qualifications articles, facility equipment hardware, chemicals, radiation, laser, and pyrotechnic devices.

These standards are established (1) so that personnel handling program hardware shall be trained to perform their work to meet established technical standards and (2) to ensure operations are conducted safely. This shall assure that personnel assigned to handle program hardware have the highest level of reliability, thereby enhancing the successful accomplishment of Langley Research Center's (LaRC) missions. It specifies the certification processes to be followed to obtain the worker certification and recertification.

LAPG 1740.6, "Personnel Safety Certification," dated July 1999 is rescinded and should be destroyed.

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Deputy Director

### **DISTRIBUTION:**

SDL 040, SDL 043, SDL 410, SDL 411 and SDL 412.  
429/Safety and Facility Assurance Office (200 copies)

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## AUTHORITIES

American National Standard Institute (ANSI).  
Occupational Safety and Health Administration (OSHA), 29 CFR Part 1926 standards.  
NPR 1800.1, "NASA Occupational Health Program Procedures."  
NPR 8715.3, "NASA Safety Manual."  
29 CFR 1910, "Occupational Safety and Health Standards."

## REFERENCES

LPR 1710.4, "Personnel Protection - Clothing and Equipment."  
LPR 1710.5, "Ionizing Radiation."  
LPR 1710.7, "Use and Handling of Explosives and Pyrotechnics."  
LPR 1710.8, "Nonionizing Radiation."  
LPR 1710.10, "Safety Clearance Procedures (Lockout/Tagout)."  
LPR 1710.12, "Potentially Hazardous Materials."  
LPR 1740.2, "Facility Safety Requirements."  
NASA Langley Form 29, "Safety Permit Request."  
NASA Langley Form 38, "Safety Permit Request - Radioactive Material."  
NASA Langley Form 48, "Safety Permit Request - Radiation Machine."  
NASA Langley Form 49, "Safety Permit Request - Laser/Microwave."  
NASA Langley Form 56, "Radioactive Material Transfer."  
NASA Langley Form 60, "Confined Space Entry Permit."  
NASA Langley Form 61, "Lifting Certification Card."  
NASA Langley Form 62, "Chemical Worker's Certification Card."  
NASA Langley Form 65, "Worker Certification Card."  
NASA Langley Form 66, "Worker Appointment and Certification Form."  
NASA Langley Form 185, "Certification of Operators to Perform Lifting Operations."  
NASA Langley Form 451, "Non-Personal Service (NPS) Contract Employee Safety Operator Appointment Form."  
NASA Langley Form 452, "Civil Service Employee Safety Operator Appointment Form."  
NASA Langley Form 453, "NASA Langley Safety Operators Permit."  
NASA Langley Form 492, "Radiation Worker's Certification Card."

**CHAPTER 1****1. INTRODUCTION****1.1 PURPOSE**

This document specifies the certification requirements for personnel who perform selected functions on LaRC that require unique occupational safety qualifications. Specifically, it addresses responsibilities, qualifications, training standards, credentials, and medical surveillance issues surrounding those specific functions. In addition, it specifies the certification processes to be followed to obtain the worker certification and recertification. These functions are performed by both civil servants and contractors on LaRC. The functions are:

- Safety Operator,
- Ionizing Radiation Worker,
- Nonionizing Radiation (Laser) Worker,
- Chemical Worker,
- Pyrotechnic Worker,
- High Worker,
- Hardware Handler,
  - Lifting Operator,
  - Forklift Operator,
- Aerial Manlift Operator,
- Confined Space Monitor.

**1.2 SCOPE**

This document defines the specific requirements of civil service and contract employees who are certified to perform the functions specified in paragraph 1.1 above. The scope of this document addresses the:

- Training requirements for certification,
- Position responsibilities and qualifications,
- Documentation required to authorize certification,
- Certification card requirements,
- Medical examination and surveillance requirements, and
- The location of other sources for more detailed information.

**1.3 GENERAL**

LaRC has established personnel safety certification standards to ensure that individuals performing specified functions are trained to:

- Perform their work in accordance with applicable safety and health standards,

- Ensure that required high-risk operations are conducted in a safe environment, and
- Ensure that the highest standards of safety and performance are maintained while accomplishing the Center's mission.

#### **1.4 RESPONSIBILITY**

The responsibility for the implementation and maintenance of LaRC safety policies and standards is delegated to the appropriate management level. Depending upon the task, the personnel safety certification process shall be managed by either the head of the organization, the Organizational Facility Safety Head (OFSH), or the first-line supervisor where the function is being performed. These personnel shall ensure that normal and emergency operating procedures are established and that personnel performing the functions are properly trained and certified.

#### **1.5 APPLICABILITY**

These personnel safety certification guidelines and procedures shall apply to the functions specified in paragraph 1.1. Additionally, both civil servants and non-personal services (NPS) contractors who perform these functions are governed by these procedural requirements. Furthermore, these procedural requirements also apply to other government agency employees who perform the tasks or functions outlined in paragraph 1.1.

#### **1.6 CERTIFICATION DOCUMENTATION**

The official documents to be used in processing individuals for safety certification are outlined on Table 1.1, page 1-3, Personnel Safety Certification Documentation. These forms are designed for use by civil servant employees who are applying for personnel safety certification. All contracts awarded on LaRC require that NPS contractor employees also comply with this safety certification process. The contracting company shall establish their safety certification process using forms which are equivalent to the forms on Table 1.1, page 1-3. The contractor's forms shall include the information required on the civil service forms.

#### **1.7 MEDICAL SURVEILLANCE REQUIREMENTS**

Some of the functions governed by the LaRC personnel safety certification process require medical surveillance. To expedite the process, the Center has established a series of LaRC Occupational Medicine Examination Protocols (OMEP's) for the positions which require such surveillance. The schedule of medical examinations that is required for certification is outlined in Table 1.2, page 1-4.

**Table 1.1, Personnel Safety Certification Documentation**

<b>POSITION TITLE</b>	<b>DOCUMENT REQUIRED TO PROCESS</b>	<b>CERTIFICATION ISSUED</b>	<b>CERTIFICATION PERIOD</b>
SAFETY OPERATOR	NASA Langley Form 452 - C/S NASA Langley Form 451 - NPS	NASA Langley Form 453 - Safety Operator's Permit	4 years
IONIZING RADIATION WORKER	NASA Langley Form 66	NASA Langley Form 492 - Radiation Worker's Certification Card	1 year
NON-IONIZING RADIATION WORKER	NASA Langley Form 66	NASA Langley Form 492 - Radiation Worker's Certification Card	1 year
CHEMICAL WORKER	NASA Langley Form 66	NASA Langley Form 62 - Worker's Certification Card	1 year
PYROTECHNIC WORKER	NASA Langley Form 29 - Safety Permit Request	NASA Langley Form 498 - Approved Safety Permit	1 year
HIGH WORKER	NASA Langley Form 66	NONE	N/A
HARDWARE HANDLERS:  a. CLASS I and CLASS II LIFTING OPERATORS  b. FORKLIFT OPERATOR	NASA Langley Form 66 and NASA Langley Form 185  NASA Langley Form 66	NASA Langley Forms 61 - Lifting Operator's Certification Card  NASA Langley Form 65 - Workers Certification Card	4 years  3 Years
AERIAL MANLIFT OPERATOR	NASA Langley Form 66	NASA Langley Form 65 - Workers Certification Card	4 years
CONFINED SPACE MONITOR	NASA Langley Form 60 - Confined Space Entry Permit	NONE	N/A

**Table 1.2, LaRC Personnel Safety Certification Medical Examination Requirements**

<b>WORKER CLASSIFICATION</b>	<b>PRE CERTIFICATION</b>	<b>ANNUAL</b>	<b>TERMINATION</b>	<b>OCCUPATIONAL MEDICINE PROTOCOL No.</b>
SAFETY OPERATOR *	None	None	None	N/A
IONIZING RADIATION WORKER **	Required	Required	Required	005
NONIONIZING RADIATION WORKER **	Required	None	Required	004
CHEMICAL WORKER **	Required	Required	None	012
PYROTECHNIC WORKER	None	None	None	N/A
HIGH WORKER **	Required	Required	None	001
HARDWARE HANDLERS **	Required	Required	None	016B
AERIAL MANLIFT OPERATOR **	Required	Required	None	016B
CONFINED SPACE MONITOR	None	None	None	N/A

\* Subject to Random Drug Testing

\*\* Medical Examinations Provided in Accordance With LaRC Occupation Medicine Examination Protocols (OMEPS).

## 1.8 RECORDS

The following forms were completed when implementing requirements:

NASA Langley Form 452, "Civil Service Employee Safety Operator Appointment Form."

NASA Langley Form 451, "Non-Personal Service (NPS) Contract Employee Safety Operator Appointment Form."

NASA Langley Form 453, "NASA Langley Safety Operators Permit."

NASA Langley Form 66, "Worker Appointment and Certification Form."

NASA Langley Form 29, "Safety Permit Request."

NASA Langley Form 492, "Radiation Worker's Certification Card."

NASA Langley Form 65, "Worker Certification Card."

NASA Langley Form 61, "Lifting Certification Card."

NASA Langley Form 60, "Confined Space Entry Permit."

NASA Langley Form 185, "Certification of Operators to Perform Lifting Operations."

NASA Langley Form 48, "Safety Permit Request - Radiation Machine."

NASA Langley Form 38, "Safety Permit Request - Radioactive Material."

NASA Langley Form 56, "Radioactive Material Transfer."

NASA Langley Form 49, "Safety Permit Request - Laser/Microwave."

NASA Langley Form 62, "Chemical Worker's Certification Card."

**Chapter 2****2. SAFETY OPERATOR****2.1 CERTIFICATION**

Each facility that requires equipment/devices to be maintained in a certain configuration for the protection of personnel or equipment shall be required to assign a certified Safety Operator and use the NASA LaRC Lockout/Tagout System. Each Safety Operator shall be safety certified and maintain a current NASA Langley Form 453, "NASA Langley Safety Operator's Permit." The NASA Langley Form 453 shall indicate the specific equipment/system on which the Safety Operator is currently certified. Examples of those entries are:

- Systems with 600 volts and above,
- Systems below 600 volts,
- Mechanical systems,
- Mechanical systems with limited electrical clearance (see LPR 1710.10, "Safety Clearance Procedures (Lockout/Tagout)"), and
- Vacuum Systems/Pressure Systems above 125 psi (psi to be specified).

**2.2 RESPONSIBILITY**

It is the responsibility of the Safety Operator to provide oversight and take action as necessary in safety matters affecting equipment/system for which he/she is certified. Performance of these responsibilities shall help ensure that the designated equipment/systems are safe to be operated, repaired, replaced, modified, or moved. Additionally, the Safety Operator shall apply or remove, as necessary, lock(s)/tag(s) when circumstances warrant or when directed by the Facility Coordinator (FC). The Safety Operator shall inform the FC of all lock/tag situations and actions as soon as possible. The head of each LaRC organization shall be responsible to enforce safety policies of the Center and support the discharge of Safety Operator's responsibilities. To support these LaRC procedural requirements, OFSH's shall ensure that each Safety Operator has a current copy of LPR 1710.10, and that they are trained in its procedures. Additionally, OFSH's shall ensure that Safety Operators are trained and certified to operate and provide oversight to the specified equipment/systems. The Safety and Facility Assurance Office (SFAO), Office of Safety, Security, Environment, and Mission Assurance (OSSEMA) shall review all contractual efforts to determine if additional safety measures are required for contractor's equipment/systems operating on LaRC; and, if required, the SFAO shall impose additional safety requirements. Requirements deemed necessary shall be added to the contract specifications to mitigate the hazards associated with the contractor's efforts.

**2.3 QUALIFICATIONS**

As a minimum, and prior to qualifying as a Safety Operator, individuals shall successfully complete the following requirements:

- Demonstrate knowledge of the associated hardware in their respective area(s),
- Pass a written exam covering the LaRC policies as contained in LPR 1710.10 and
- Pass a practical exam in which the individual shall demonstrate and verbally explain the correct procedures relevant to the performance of his/her duties.

Safety Operators shall declare disqualification when they possess insufficient knowledge of the equipment/system configurations to provide adequate safety.

## **2.4 DOCUMENTATION**

The appointment of Safety Operators requires that individuals formally apply for and be appointed to the position. After appointment is made, Safety Operators shall be required to possess a NASA Langley Form 453 which indicates the specific equipment/system that they are authorized to operate and for which they are qualified to provide safety clearance.

### **2.4.1 Safety Operator's Appointment Forms**

Both civil servants and non-personal service (NPS) contract employees may apply for appointment as a Safety Operator. The certification process ensures that individuals have received the training, shows that they have the qualifications to function as a Safety Operator, and authorizes their certification. Certification indicates that a determination has been made that the individual has the qualifications, training, and safety certification described in paragraph 2.3 above.

Civil service employees applying for appointment as a Safety Operator are required to complete a NASA Langley Form 452, "Civil Service Employee Safety Operator Appointment Form." This form shall require the approval of the following:

- ☐ Supervisor of the potential Safety Operator,
- ☐ Organizational Unit Manager of the potential Safety Operator,
- ☐ Qualifying electrical official,
- ☐ Qualifying mechanical official, and
- ☐ LaRC Safety Manager (final approval).

NPS employees applying for appointment as a Safety Operator shall be required to complete NASA Langley Form 451, "Non-Personal Services (NPS) Contract Employees Safety Operator Appointment Form." This form requires the approval of the following:

- ☐ Contract Manager,
- ☐ Contracting Officer or designee,
- ☐ Qualifying electrical official,
- ☐ Qualifying mechanical official, and
- ☐ LaRC Safety Manager (final approval).

### **2.4.2 NASA Langley Safety Operator's Permit**

The NASA Langley Form 453 shall be issued to individuals who have been certified as LaRC Safety Operators. The holder of the NASA Langley Form 453 shall be an authorized Safety Operator in accordance with the provisions of LPR 1710.10 and is qualified to apply LaRC locks/tags to the equipment specified on the reverse side of the permit. NASA Langley Form 453's expire four years from the date of their issuance and renewals shall be processed in a timely manner. Safety Operators shall be notified, by SFAO, 30-60 days in advance of the expiration of their NASA Langley Form 453. NASA Langley Form 453 renewals or changes to currently issued permits shall be processed on NASA Langley Forms 452 and 451, respectively.

## **2.5 MEDICAL SURVEILLANCE**

Personnel applying for and receiving certification as a Safety Operator are not required to complete a physical examination prior to certification.

## Chapter 3

### 3. IONIZING RADIATION WORKER

#### 3.1 CERTIFICATION

All personnel who operate, manipulate, or who have any other type of physical control over the use of ionizing radiation-producing equipment or material shall be required to be trained and safety certified as Ionizing Radiation Workers. Most hazardous operations at LaRC are covered by a NASA Langley Form 498, "Safety Permit." A NASA Langley Form 498 shall be initiated by the submission of either a NASA Langley Form 38, "Safety Permit Request - Radioactive Material" or NASA Langley Form 48, "Safety Permit Request - Radiation Machine." Ionizing radiation-producing equipment or material shall be specifically authorized by NASA Langley Form 498. Additionally, personnel who are likely to receive a radiation dose in excess of 10 percent of the limits specified in LPR 1710.5, "Ionizing Radiation," Chapter 5, as a result of exposure to radiation-producing equipment on LaRC, shall also be trained and certified as Ionizing Radiation Workers. Questions concerning this certification requirement shall be directed to the Radiation Safety Officer (RSO).

#### 3.2 RESPONSIBILITY

It is the responsibility of each OFSH to ensure that personnel within their facility who fall under the parameters outlined in paragraph 3.1, shall be trained and certified under the safety certification requirements of an Ionizing Radiation Worker.

#### 3.3 QUALIFICATIONS

As a minimum, and prior to working with ionizing radiation, candidate personnel shall be required to specify the radiation experience and training they have received in the following areas:

- General description of radiation and radiation hazards (provided by RSO),
- Basic principles of radiation safety (provided by RSO),
- Appropriate Federal regulations and LPR 1710.5,
- Emergency procedures (provided by FSH), and
- Radiation safety procedures relevant to duties associated with employment (provided by each FSH).

#### 3.4 DOCUMENTATION

Ionizing Radiation Workers on LaRC include both civil service and NPS contract employees. There are specific documents that these workers shall complete and, in some cases, possess that identify them as certified Ionizing Radiation Workers. These documents are discussed in the following paragraphs.

### **3.4.1 Worker Appointment and Certification Forms**

Applicants shall complete and submit the appropriate Appointment and Certification Form. That form shall stipulate that the training and safety certification requirements of an Ionizing Radiation Worker have been fulfilled.

#### **3.4.1.1 Civil Service Workers**

Civil servants shall complete and submit NASA Langley Form 66, "Worker Appointment and Certification Form."

#### **3.4.1.2 Non-personal Services (NPS) Contractors**

NPS contract personnel shall complete and submit an appropriate comparable form provided by their company. The contractor's form shall provide for equivalent information as required by NASA Langley Form 66 and it shall contain an approval process.

### **3.4.2 Radiation Worker's Certification Card**

Upon receipt and approval of a Worker Appointment and Certification Form, the RSO shall issue the requester a NASA Langley Form 492, "Radiation Worker's Certification Card." The NASA Langley Form 492 shall contain the specific NASA Langley Form 498 number(s) that denote the duties to be performed by the worker. The worker shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks.

#### **3.4.2.1 Revalidation of Certification**

NASA Langley Form 492's are valid for one year from the date of issuance. It is the responsibility of each radiation worker to have the NASA Langley Form 492 revalidated by the RSO prior to the card expiration date.

#### **3.4.2.2 Termination of Certification**

Upon termination of employment, or when the worker no longer needs to be certified to perform ionizing radiation work, the worker shall immediately surrender the NASA Langley Form 492 to the RSO.

### **3.4.3 Certifying Workers for New Safety Permit**

A NASA Langley Form 66 shall be completed and submitted for each individual who will be working on a new operation or experiment involving ionizing radiation. The forms shall be processed as attachments to either (1) a NASA Langley Form 48 or (2) a NASA Langley Form 38, or (3) for the new operation or experiment (see LPR 1710.5, Chapter 5), as appropriate. The entire package shall be processed for approval by the RSO. If, after review by the RSO, any individual is determined to be unqualified, due to the lack of past experience or training, that individual's NASA Langley Form 492 shall be detached from NASA Langley Form 38 or NASA Langley Form 48. The RSO shall then schedule the individual for an applicable-level LaRC safety course before

reconsidering the individual to work under that NASA Langley Form 498. When approved, a NASA Langley Form 498 shall be issued for the equipment/system.

If the radioactive material is to be relocated, application shall be made to and approved by SFAO using NASA Langley Form 56, "Radioactive Material Transfer."

#### **3.4.4 Certifying Workers for Existing Safety Permit**

A NASA Langley Form 66 is also required when adding new personnel to an existing NASA Langley Form 498. These requests shall be processed by the RSO as described under Interim Approvals (see LPR 1710.5, Chapter 5).

### **3.5 MEDICAL SURVEILLANCE**

Due to the potential dangers involved in radiation, all Ionizing Radiation Workers shall undergo and pass medical examinations. These examinations shall be required (1) before they are certified to begin work, (2) annually while they are functioning in the position, and (3) upon termination. Civil servants shall receive medical examinations at the LaRC Occupational Medical Center (OMC) in accordance with LaRC OMEP's. Additionally, contracts issued on LaRC require the same level of medical surveillance for contract employees. Medical surveillance requirements for NPS contract employees, however, shall be the responsibility of the contracting company.

#### **3.5.1 Pre-Certification Examination**

Civil servants shall receive these medical examinations at the LaRC OMC, Building 1149. They are accomplished through routine processing of the NASA Langley Form 66 and scheduled by the RSO. NPS contractor personnel examinations shall be scheduled and accomplished in accordance with the guidelines established by their company.

#### **3.5.2 Annual Examinations**

Ionizing Radiation Workers shall be required to undergo and pass an annual medical examination to maintain their certification. These examinations shall be conducted at the same locations and under the same guidelines as the pre-certification examinations. The medical records of these personnel shall be specifically identified so that the examining physician is alerted to examine the employee for symptoms relating to radiation exposure.

#### **3.5.3 Termination Examinations**

Upon termination of employment, or when an individual no longer requires safety certification as an Ionizing Radiation Worker, the individual shall undergo a termination medical examination. Termination medical examinations shall be scheduled and conducted under the same guidelines as the annual medical examinations. Line supervisors shall be responsible for notifying the RSO when civil servants are being decertified as Ionizing Radiation Workers. This notification is required two weeks prior to the termination so that the examination can be scheduled.

**Chapter 4****4. NONIONIZING RADIATION (LASER) WORKER****4.1 CERTIFICATION**

All personnel who operate, manipulate, or who have any other type of physical control over the use of nonionizing radiation-producing equipment or material shall be required to be trained and safety certified as Nonionizing Radiation Workers. In addition, all nonionizing radiation-producing equipment or material shall be specifically authorized by the issuance of a NASA Langley Form 498. Application for that NASA Langley Form 498 shall be initiated by submission of NASA Langley Form 49, "Safety Permit Request - Laser/Microwave." Questions concerning this certification requirement shall be directed to the RSO.

**4.2 RESPONSIBILITY**

It is the responsibility of each OFSH to ensure that personnel within their facility who fall under the parameters outlined in paragraph 4.1 are trained and certified under the safety certification requirements for a Nonionizing Radiation Worker.

**4.3 QUALIFICATIONS**

As a minimum, and prior to working with nonionizing radiation, candidate personnel shall be required to specify the radiation experience and training they have received in the following areas:

- General description of nonionizing radiation and its hazards (provided by RSO),
- Basic principles of nonionizing radiation safety (provided by RSO),
- Federal regulations and LPR 1710.4, "Personnel Protection – Clothing and Equipment,"
- Emergency procedures (provided by FSH), and
- Radiation safety procedures relevant to duties associated with employment (provided by each FSH).

**4.4 DOCUMENTATION**

Nonionizing Radiation Workers on LaRC include both civil service and NPS contract employees. There are specific documents that these workers shall complete and, in some cases, possess that identify them as Nonionizing Radiation Workers. These documents are discussed in the following paragraphs.

**4.4.1 Worker Appointment and Certification Forms**

Applicants shall complete and submit the appropriate Appointment and Certification Form. That form shall stipulate that the training and safety certification requirements of a Nonionizing Radiation Worker have been fulfilled.

#### **4.4.1.1 Civil Service Workers**

Civil servants shall complete and submit NASA Langley Form 66

#### **4.4.1.2 Non-personal Services Contractors**

NPS contract personnel shall complete and submit an appropriate comparable form provided by their company. The contractor's form shall provide for equivalent information as required by the NASA Langley Form 66 and it shall contain an approval process.

#### **4.4.2 Radiation Worker's Certification Card**

Upon receipt and approval of a Worker Appointment and Certification Form, the RSO shall issue the requester a NASA Langley Form 492, "Radiation Worker's Certification Card." The card shall reflect the specific NASA Langley Form 498 number(s) that denote the duties to be performed by the worker. The worker shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks.

##### **4.4.2.1 Revalidation of Certification**

NASA Langley Form 492's are valid for one year from the date of issuance. It is the responsibility of each radiation worker to have the NASA Langley Form 492 revalidated by the RSO prior to the card's expiration date.

##### **4.4.2.2 Termination of Certification**

Upon termination of employment, or when the worker no longer needs to be certified to perform nonionizing radiation work, the worker shall immediately surrender the NASA Langley Form 492 to the RSO.

#### **4.4.3 Certifying Workers for New Safety Permit**

A NASA Langley Form 66 shall be completed and submitted for each individual who will be working on a new operation or experiment involving nonionizing radiation. The forms shall be processed as attachments to NASA Langley Form 49, for the new operation or experiment (see LPR 1710.8, Chapter 5). The entire package shall be processed for approval by the RSO. If, after review by the RSO, any individual is determined to be unqualified, due to the lack of past experience or training, that individual's NASA Langley Form 492 shall be detached from the NASA Langley Form 49. The RSO shall then schedule the individual for an applicable-level LaRC safety course before reconsidering the individual to work under that NASA Langley Form 498.

#### **4.4.4 Certifying Workers for Existing Safety Permit**

A NASA Langley Form 66 is also required when adding new personnel to an existing NASA Langley Form 498. These requests shall be processed by the RSO as described under Interim Approvals (see LPR 1710.8, Chapter 5).

## **4.5 MEDICAL SURVEILLANCE**

Due to the potential dangers to workers' eyes involving nonionizing radiation (lasers), all Nonionizing Radiation Workers shall be required to undergo and pass an eye examination by an ophthalmologist. These examinations shall be required (1) before workers are certified, and (2) upon termination. Civil servants shall receive eye examinations at the OMC in accordance with LaRC OMEP's. Additionally, contracts issued on LaRC shall require the same level of eye examinations for contract employees. Eye examination requirements for NPS contract employees, however, shall be the responsibility of the contracting company.

### **4.5.1 Pre-certification Examination**

Civil servants shall receive these eye examinations at the LaRC OMC, Building 1149. They are accomplished through routine processing of the NASA Langley Form 66 and scheduled by the RSO. NPS contractor personnel eye examinations shall be scheduled and accomplished in accordance with the guidelines established by their company.

### **4.5.2 Termination Examinations**

Upon termination of employment, or when an individual no longer requires safety certification as a Nonionizing Radiation Worker, the individual shall undergo a termination eye examination. Termination eye examinations shall be scheduled and conducted under the same guidelines as the pre-certification medical examinations. Line supervisors shall be responsible for notifying the RSO when civil servants are being decertified as Nonionizing Radiation Workers. This notification shall be required two weeks prior to the termination so that the examination can be scheduled.

**Chapter 5****5. CHEMICAL WORKER****5.1 CERTIFICATION**

LaRC civil service and NPS contract employees who handle specified potentially hazardous materials (PHM) shall be classified as Chemical Workers. Specifically, Chemical Workers conduct operations or perform functions using materials listed on NASA Langley Form 498's. Personnel classified as Chemical Workers shall be required to have the specified training and certification specified herein.

**5.2 RESPONSIBILITY**

It is the responsibility of each OFSH to ensure that personnel who function within their facility as a Chemical Worker are trained and certified. The training and certification shall be in compliance with the parameters established herein.

**5.3 QUALIFICATIONS**

As a minimum, and prior to working with PHM, individuals shall be familiar with applicable NASA Langley Form 498's and shall complete training in the following topics, as applicable:

- Toxic Chemicals and Basic Hazard Communication.
- Toxic Chemical Monitoring\*.
- Accident Investigation and Safety Planning.
- Flammable, Corrosive, and Reactive Chemicals.
- Compressed Gases\*.
- Cryogenic Liquids\*.
- Fire Safety.
- Storage.

\* If needed for the operation planned, additional site training in personal protective equipment and ventilation control systems may be required.

Chemical Workers shall receive formal training in an approved chemical training course prior to appointment. The course shall address the topic areas in detail, providing a basis for the Chemical Workers to safely perform their specific functions.

**5.4 DOCUMENTATION**

Personnel performing work on LaRC as a Chemical Worker shall be required to complete specific documentation and request certification to perform their duties. Chemical Workers on LaRC may be either civil service employees or NPS contract employees. There are specific authorizing documents that shall be required to be processed and issued for both of these classes of workers.

### **5.4.1 Worker Appointment and Certification Forms**

Personnel requiring certification as Chemical Workers on LaRC shall apply for and document the applicable training they have received. Documentation shall be required to be made on the appropriate Appointment and Certification Form. Specifically, the form shall stipulate that the worker has fulfilled the requirements for certification as a LaRC Chemical Worker.

#### **5.4.1.1 Civil Service Workers**

Civil servants shall use NASA Langley Form 66 to certify that the requirements to work as a Chemical Worker have been satisfied.

#### **5.4.1.2 Non-personal Services Contractors**

NPS contract personnel who are requesting certification as a Chemical Worker shall use a comparable form provided by their company. The contractor's form shall provide for equivalent information as NASA Langley Form 66 and shall contain an approval process.

### **5.4.2 Chemical Worker's Certification Card**

Upon satisfactory completion and submission of the appropriate NASA Langley Form 66, SFAO shall issue a NASA Langley Form 62, "Chemical Worker's Certification Card." The worker shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks.

#### **5.4.2.1 Revalidation of Certification**

The NASA Langley Form 62 is valid for one year from the date of issuance. It is the responsibility of each Chemical Worker to have the NASA Langley Form 62 revalidated by SFAO prior to the card's expiration date.

#### **5.4.2.2 Termination of Certification**

Upon termination of employment, or when the worker no longer needs to be certified to perform chemical work, the worker shall immediately surrender NASA Langley Form 62 to SFAO.

## **5.5 MEDICAL SURVEILLANCE**

Due to the potential danger that chemical exposure presents to LaRC Chemical Workers, they shall be required to undergo scheduled medical examinations. These examinations shall be required (1) before workers are certified, (2) annually while they are functioning in the position, and (3) as directed by exposure. Civil servants shall receive medical examinations at the OMC in accordance with LaRC OMEP's. Additionally, contracts issued on LaRC require the same level of medical surveillance for contract employees. Medical surveillance requirements for NPS contract employees, however, shall be the responsibility of the contracting company.

### **5.5.1 Pre-certification Examination**

Civil servants shall receive these medical examinations at the LaRC OMC, Building 1149. They are accomplished through routine processing of the NASA Langley Form 66 and scheduled by the OFSH. NPS contractor personnel examinations shall be scheduled and accomplished in accordance with the guidelines established by their company. For the initial examination of Chemical Workers, OMEP's and contractor equivalents shall be reviewed and requirements tailored/modified by medical and functional officials as appropriate for each situation.

### **5.5.2 Annual Examinations**

Chemical Workers shall be required to undergo and pass an annual medical examination to maintain their certification and to determine if they have symptoms that relate to chemical exposure. The medical records of Chemical Workers shall be specifically identified so that the examining physician can be alerted to symptoms relating to chemical exposure. These examinations shall be conducted at the same locations and under the same guidelines as the pre-certification examinations. Individuals operating under a permitted operation shall be required to participate in annual examinations.

### **5.5.3 Exposure Examinations**

Upon exposure to certain chemicals a Chemical Worker, shall undergo a medical examination. These examinations shall be scheduled and conducted under the same guidelines as the pre-certification and annual medical examinations. Line supervisors shall be responsible for notifying the OFSH when civil servant Chemical Workers have sustained exposure to certain chemicals. (See LPR 1710.12, "Potentially Hazardous Materials.)

**Chapter 6****6. PYROTECHNIC WORKER****6.1 CERTIFICATION**

All personnel who handle, transport, install, test, or have physical control over the use of pyrotechnic devices, systems, or material shall be required to be safety certified as Pyrotechnic Workers. Pyrotechnic Workers are restricted to performing work on pyrotechnics whose use has been specifically authorized by a NASA Langley Form 498. Pyrotechnic workers may be either civil service or NPS contract employees. Also, these workers may be further classified as Restricted Pyrotechnic Workers. Restricted Pyrotechnic Workers shall be authorized to handle only a limited type or quantity of pyrotechnics for a specific application.

**6.2 RESPONSIBILITY**

It is the responsibility of each first-line supervisor to ensure that personnel within their organization who handle pyrotechnics are trained and certified for that purpose. The responsibility for the pyrotechnic safety training is also shared by the FSH who is responsible for the pyrotechnic activity.

**6.3 QUALIFICATIONS**

As a minimum, and prior to working as a certified Pyrotechnic Worker, individuals shall successfully complete the following:

- Receive instruction regarding the associated hardware with which the individual worker shall be required to work. The worker shall complete a four-hour lecture course on the hardware they will be using. This course shall be taught by the Pyrotechnic Support Engineer,
- Obtain a working knowledge of appropriate Federal regulations and LPR 1710.7, "Use and Handling of Explosives and Pyrotechnics," and
- Receive an on-the-job training program with a LaRC-Certified Pyrotechnic Technician. The training program shall consist of side-by-side training involving the certified technician and the Pyrotechnic Worker seeking certification.

**6.4 DOCUMENTATION**

In order to use pyrotechnics on LaRC, a NASA Langley Form 29, "Safety Permit Request," shall be submitted and forwarded through the approval process. Subsequent to the request, a NASA Langley Form 498 shall be issued for that purpose. Pyrotechnic Workers shall be identified on the NASA Langley Form 498.

**6.4.1 Safety Permit Request**

The prescribing document governing the issuance of a NASA Langley Form 498 authorizing a worker to use pyrotechnics on LaRC is LPR 1710.7. The worker shall

contact the Pyrotechnic Support Engineer for assistance in filling out the NASA Langley Form 29. The NASA Langley Form 29 shall be forwarded through the approval process to obtain the following signatures:

- Pyrotechnic Support Engineer,
- Project Engineer,
- Supervisor of individual requesting safety permit,
- LaRC Safety Manager, and
- OFSH.

#### **6.4.2 Safety Permit**

The holder of the NASA Langley Form 498 shall be an authorized Pyrotechnic Worker in accordance with the provisions of LPR 1710.7. The permit shall be reviewed at least annually by the Pyrotechnic Support Engineer and updated whenever an operational change is required. It shall always reflect existing operations and defined hazard control techniques which result in acceptable risk levels.

#### **6.4.3 Pyrotechnic Worker Certification**

Pyrotechnic personnel shall be "Certified" when their names are listed on a valid NASA Langley Form 498. All NASA Langley Form 498's which certify Pyrotechnic Workers shall be reviewed annually.

### **6.5 MEDICAL SURVEILLANCE**

No medical examinations shall be required for personal safety certification of Pyrotechnic Workers on LaRC.

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**Chapter 7****7. HIGH WORKER****7.1 CERTIFICATION**

Personnel whose normal or periodic duties or assignments require them to function at elevated heights are required to be trained and safety certified as High Workers. Elevated levels at this Center are defined as working spaces that are 25 feet or more above ground level, and which are not enclosed by normal structural walls and ceilings. This definition is consistent with the American National Standard Institute (ANSI) and the Occupational Safety and Health Administration (OSHA), 29 CFR Part 1926 standards. It includes substations, gantries, and certain hazardous roofs. Not included in this category are internal balconies, flat roofs having appropriate loading capacity and OSHA-compatible rails, guards, parapets, and so forth. Heights of less than 25 feet shall, however, be categorized as elevated if management determines that personnel exposure to those conditions could result in injury or death.

**7.2 RESPONSIBILITY**

It is the responsibility of the line supervisor to comply with the requirements of LPR 1740.2, "Facility Safety Requirements." Supervisors shall refer all questions relative to working at elevated levels to the LaRC Safety Manager or the Occupational Health Officer (OHO) for advice and guidance. Supervisors shall ensure that all personnel under their supervision designated as High Workers are, and remain, certified in accordance with the requirements herein.

**7.3 QUALIFICATIONS**

As a minimum, and prior to working as a High Worker, candidate personnel shall:

- Receive instruction regarding working at elevated levels specific to the tasks that are to be performed. Participate in discussion with the OFSH and Facility Coordinator regarding the work in that facility, and
- Possess a working knowledge of the appropriate Federal regulations and LPR 1740.2

**7.4 DOCUMENTATION**

High Workers on LaRC include both civil service and NPS contract employees. There are specific documents that these workers shall complete that certify them to be High Workers. NASA Langley Form 66 shall be used for government personnel to determine and certify that the qualifications for worker training and safety certification have been satisfied. NASA Langley Form 66 shall be initiated by the line supervisor. Contractor personnel shall use a form which supplies the equivalent information of NASA Langley Form 66.

## **7.5 MEDICAL SURVEILLANCE**

Due to the potential dangers involved in working at heights, all High Workers shall undergo medical examinations. These examinations shall be required (1) before they are certified to begin work and (2) annually while they are functioning as a High Worker. Civil servants shall receive these medical examinations at the LaRC OMC in accordance with LaRC OMEP's. Additionally, contracts issued on LaRC shall require the same level of medical examinations for contract employees. Medical surveillance requirements for NPS contract employees, however, shall be the responsibility of the contracting company.

### **7.5.1 Pre-Certification Medical Examination**

Civil servants shall receive these medical examinations at the LaRC OMC, Building 1149. They are accomplished through routine processing of the NASA Langley Form 66 and scheduled by the OFSH. NPS contractor personnel examinations shall be scheduled and accomplished in accordance with the guidelines established by their company.

### **7.5.2 Annual Medical Examinations**

High Workers shall be required to undergo and pass an annual medical examination to maintain their certification. These examinations shall be conducted at the same locations and under the same guidelines as the pre-certification examinations.

**Chapter 8****8. HARDWARE HANDLER****8.1 CERTIFICATION**

Hardware Handlers at LaRC are classified as Lifting Operators or Forklift Operators. They are distinguished by the certification criteria required to perform distinctly different categories of functions. Lifting Operators are further divided into two sub-classifications:

- Class I - General: Rigger and Equipment Operator
- Class II - Restricted: Technical Employees (restricted to the specific equipment they are qualified to operate).

Personnel who operate, manipulate, or who have any other type of physical control over the use of handling/lifting equipment on LaRC shall be required to be trained and safety certified. Hardware Handlers are defined as individuals who operate mobile and/or permanently installed cranes, forklifts, portable or fixed hoisting assemblies, and general equipment such as wire ropes, slings, hooks, bridles, and other fittings critical to handling/lifting operations. These examples are not all inclusive; and, additional equipment operators may require safety certification at the discretion of SFAO.

**8.2 RESPONSIBILITY**

It is the responsibility of the head of each organization to ensure that personnel who operate special handling equipment or perform critical lifting are trained and certified in compliance with this document.

**8.3 QUALIFICATIONS**

As a minimum, and prior to working as a Hardware Handler, personnel shall successfully complete the training to be safety certified for the position. The required qualifications are outlined in the following paragraphs.

**8.3.1 Class I - General: Rigger and Equipment Operator Qualifications**

Riggers and equipment operators who are classified as Class I: General Operators, shall meet the requirements in the following paragraphs to be safety certified:

**8.3.1.1 Testing Requirements**

Testing of Class I Lifting Operators shall include written examinations that contain questions addressing the work performed by Class I riggers and special equipment operators. The questions shall address, as a minimum, the following subject areas:

- Determination of center of gravity (CG),

- Determination of load weight,
- Calculation of lifting-line strength such as cable and rope and margin of safety,
- Calculation of sling tension loads,
- Use of common slings and hitches,
- Selection of sizes and use of chocks,
- Use of hydra-set,
- Use of proof-loading specifications,
- Use of hand signals,
- Use of and determining strength of knots,
- Use of and determining strength of shackles and hooks,
- Distortion of loads (blocking),
- Safety applications, and
- Knowledge of quality assurance requirements.

#### **8.3.1.2 Proficiency Examination Requirements (Riggers)**

Proficiency testing for Class I Lifting Operators (Riggers) shall include, as a minimum, performance of the work functions listed below:

- Conducting a series of difficult load attachments involving a determination of weight and CG,
- Selecting method of attachment,
- Selecting hooks, bridles, slings, and so forth,
- Hand signaling a typical lift, move, and relocation of load, crane boom, and pendant line assembly,
- Demonstrating knowledge of hand signals used with mobile and lifting equipment as defined in Lifting Program Hardware Class I Certification.

#### **8.3.1.3 Proficiency Examination Requirements (Lifting and Special Equipment Operators)**

Proficiency testing for Class I Lifting Operators (Lifting and Special Equipment Operators) shall include, as a minimum, performances listed below:

- Operating mobile cranes,
- Operating overhead or gravity cranes,
- Operating forklifts,
- Operating portable lifting cranes,
- Operating industrial truck cranes,
- Operating Hy-Ranger vehicles,
- Operating all types of bucket trucks, and
- Demonstrating operational proficiency in:
  - ☐ Equipment inspection procedure,
  - ☐ Positioning crane for lift,
  - ☐ Outrigger deployment,
  - ☐ Full-range boom and cab travel (empty),

- ☐ Hand-signal motions (empty),
- ☐ Lifting and braking with load,
- ☐ Hand-signal motions (loaded), and
- ☐ A series of load placements.

#### **8.3.1.4 Experience requirements**

Class I - General: Rigger and Equipment Operators shall possess at least a minimum of four years job related experience in the Building and Trades Union or have been employed for two years as a first class maintenance rigger.

#### **8.3.2 Class II - Restricted: Technical Employees Qualifications**

This classification of Lifting Operators shall be restricted to operating the specific equipment listed on their NASA Langley Form 61, "Lifting Certification Card." Certification of Class II Lifting Operators is based upon the following:

- Related experience,
- Appropriate testing requirements,
- Appropriate proficiency examinations,
- Approved training course, and
- Acceptable period of on-the-job training.

##### **8.3.2.1 Testing Requirements**

Testing of Class II Lifting Operators shall include written examinations that contain appropriate questions addressing the work to be performed. The questions shall address, as a minimum, the subject areas listed below:

- Determination of center of gravity (CG),
- Determination of load weight,
- Calculation of lifting-line strength such as cable and rope and margin of safety,
- Calculation of sling tension loads,
- Use of common slings and hitches,
- Selection of sizes and use of chocks,
- Use of proof-loading specification,
- Use of hand signals,
- Use of and determining strength of shackles and hooks,
- Distortion of loads (blocking),
- Safety applications, and
- Knowledge of quality assurance requirements.

##### **8.3.2.2 Proficiency Examinations**

Class II Lifting Operators shall be required to pass a proficiency examination before they are safety certified. The examinations shall include:

- Conducting a series of typical load attachments (i.e., location of CG, weight determination, and selecting lifting devices such as hooks, bridles, slings, and so forth),
- Hand signaling a lift operation, and
- Demonstrating operational proficiency in special pieces of lifting equipment (i.e., lifting, braking, load placement, etc.) with and without hand signals.

### **8.3.3 Forklift Operators**

#### **8.3.3.1 Testing Requirements**

Testing requirements for Forklift Operators shall include written examinations that contain appropriate questions addressing the demands of the work to be performed. The questions shall address, but are not limited to, the subject areas listed below.

- Safety applications and safety inspections,
- Knowledge of equipment limitations, capabilities, and design considerations,
- Knowledge of equipment operations and control systems,
- Equipment care and damage reporting requirements,
- Use of required safety equipment,
- Ground slope restrictions,
- Emergency operation procedures,
- Lifting, moving, and setting-down load restrictions, and
- Weight restrictions.

Forklift Operators shall successfully pass the appropriate written test establishing that the worker has operational safety and knowledge of forklift use.

#### **8.3.3.2 Proficiency Examination Requirements**

Proficiency testing for Forklift Operators shall be required before they can be safety certified. This hands-on examination shall include, as a minimum:

- Demonstrating proper use of forklift controls,
- Following proper procedures for unattended forklift,
- Demonstrating competency in basic maneuvering skills,
- Demonstrating competency in picking up a load,
- Demonstrating competency in driving with a load,
- Demonstrating competency in stacking a load, and
- Demonstrating competency in loading/unloading a trailer, rail car, or other vehicle.

#### **8.3.3.3 Experience Requirements**

Workers requiring safety certification as a Forklift Operator shall be required to complete the following:

- Attend a two-hour classroom training program addressing the following issues as they relate to forklift utilization:
  - ☐ Safety,
  - ☐ Emergency procedures,
  - ☐ General performance standard,
  - ☐ Requirements,
  - ☐ Pre-operational checks, and
  - ☐ Safety related defects and symptoms for forklifts.
- Complete a minimum of six hours of hands on training on a forklift, and
- Receive an informal annual review by their organization on equipment operation and safety procedures.

## **8.4 DOCUMENTATION**

Forklift Operators and both Class I and Class II Lifting Operators shall be required to be safety certified through the approval process outlined in this document.

### **8.4.1 Class I Lifting Operator Documents**

Civil servant employees who request safety certification on LaRC as a Class I Operator shall process their request on NASA Langley Form 66, and NASA Langley Form 185, "Certification of Operators to Perform Lifting Operations." These forms shall be used to document and certify that the qualifications required in paragraph 8.3 have been satisfied. NPS contract personnel who require certification shall use an appropriate comparable form for certification. The contractor's form shall provide information equivalent to that on NASA Langley Form 66 and shall contain an approval process. NASA Langley Form 61 shall be issued to certify lifters who are qualified to perform lifts with specific equipment. The NASA Langley Form 61 shall list, on its reverse side, the specific equipment the individual is certified to operate. The worker shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks. Recertification shall be required every four years and shall follow the same process as the original certification process.

### **8.4.2 Class II Lifting Operator Documents**

NASA Langley Form 66 and NASA Langley Form 185 shall be used to initiate the recommendation for the certification of Class II Lifting Operators. These forms certify that all of the requirements contained in paragraph 8.3 have been satisfied. These forms shall require the signatures of the following authorizing individuals:

- Supervisor/Contract Manager,
- OUM Training Coordinator,
- Classroom Instructor,
- Applications Instructor,
- OUM/COTR,
- Safety Manager

NASA Langley Form 61 certifies that the holder has successfully completed the course work and physical requirements in accordance with the minimum OSHA training requirements. The NASA Langley Form 61 shall document the specific equipment that the lifting operator is certified to operate. The worker shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks. Recertification shall be required every four years and shall follow the same process as the original certification process.

#### **8.4.3 Forklift Operator Documents**

Forklift Operators shall be required to be safety certified through the approval process outlined in this document. Civil servant employees who require safety certification on LaRC as a Forklift Operator shall process their request on NASA Langley Form 66. This form shall be used to document and certify that worker qualifications required in paragraph 8.3.3 have been satisfied. NPS contract personnel who require certification shall use an appropriate comparable form provided by their company for certification. The contractor's form shall provide equivalent information as NASA Langley Form 66 and it shall contain an approval process. NASA Langley Form 65, "Worker Certification Card," shall be issued to certified Forklift Operators. The reverse side of the NASA Langley Form 65 shall show the specific forklift equipment that the worker is certified to operate. Recertification of a Forklift Operator shall be required every three years. The worker shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks. The recertification process shall follow the same procedures that were used during the original certification process.

#### **8.5 MEDICAL SURVEILLANCE**

Hardware Operators at LaRC can be either civil service or NPS contractor employees. The work performed by these individuals requires strict adherence to LaRC OMEP's. Class I Lifting Operators shall be required to have (1) pre-certification and (2) annual medical examinations as specified in LaRC OMEP's. Class II Lifting Operators shall be required to have (1) pre-certification medical examinations and (2) medical examinations every four years at the time of recertification with a requirement to have a visual and hearing acuity test performed each year between recertification. Forklift Operators shall be required to have (1) pre-certification medical examinations and (2) medical examinations every three years at the time of recertification with a requirement to have a visual and hearing acuity test performed each year between recertification. Hardware Handler candidates and certified Hardware Handlers shall successfully pass these OMEP's to be certified/recertified. Civil service employees shall have their required medical examinations at the OMC. All contracts awarded on LaRC shall require that the contracting company provide medical surveillance of their personnel who will perform these duties.

##### **8.5.1 Pre-Certification Medical Examination**

Personnel requiring certification as Hardware Handlers shall undergo and pass a medical examination in compliance with LaRC OMEP's, prior to issuance of a NASA

Langley Form 61 or NASA Langley Form 65. This examination is accomplished through routine processing of NASA Langley Form 66 or the equivalent contractor's form. A medical disqualification shall result if a candidate does not satisfy the requirements of the OMEP's.

### **8.5.2 Medical Examinations**

All LaRC Class I Lifting Operators shall annually undergo and pass a medical examination in accordance with LaRC OMEP's. All LaRC Class II Lifting Operators shall undergo and pass a medical examination every four years at the time of their recertification, with visual and hearing acuity tests required each year in between recertification, in accordance with LaRC OMEP's. All LaRC Forklift Operators shall undergo and pass a medication examination every three years at the time of their recertification, with visual and hearing acuity tests required each year in between recertification, in accordance with LaRC OMEP's.

**Chapter 9****9. AERIAL MANLIFT OPERATOR****9.1 CERTIFICATION**

Aerial Manlift Operators shall be trained and safety certified to operate the manlift equipment that is authorized for use on the Center. There are three classes of equipment that workers shall be separately certified to operate through the safety certification process. The specific manlift equipment that requires separate safety certification are:

- Genie Boom Manlift,
- JLG Manlift, and
- High Lift Manlift.

All aerial manlift equipment shall be used under the direct control of at least two certified operators. Workers undergoing safety certification training shall be assisted by two other safety certified operators, during the operation/use of any aerial manlift equipment. Additionally, a separate safety certification shall be required to operate each individual type of equipment. Workers who operate aerial manlift equipment shall possess a NASA Langley Form 61, specifying the type of equipment they may operate.

**9.2 RESPONSIBILITY**

It is the responsibility of the head of each organization that uses the aerial manlift equipment to ensure that personnel who operate the equipment are trained and certified in compliance with this document.

**9.3 QUALIFICATIONS**

As a minimum, and prior to working as an Aerial Manlift Operator, individuals shall successfully complete the appropriate training and safety certification authorizing them to operate the equipment. The qualifications are outlined in the following paragraphs.

**9.3.1 Testing Requirements**

Testing of Aerial Manlift Operators shall include written examinations that contain appropriate questions addressing the work to be performed. The questions shall address, as a minimum, the subject areas listed below.

- Safety applications,
- Knowledge of equipment limitations and capabilities,
- Knowledge of equipment operations and control systems,
- Equipment care and damage reporting requirements,
- High voltage and electrical operational restrictions,

- Use of required safety equipment,
- Wind restrictions,
- Ground conditions restrictions,
- Ground slope restrictions,
- Emergency operation procedures,
- Safety zone requirements,
- Lifting restrictions,
- Weight restrictions, and
- Successfully pass the appropriate written test that establishes the worker has safety and operational knowledge of the aerial manlift equipment they are certified to operate.

### 9.3.2 Proficiency Examination Requirements

Proficiency testing for Aerial Manlift Operators shall include, as a minimum, demonstrated performance of work functions listed below:

- Aerial lift buckets operations,
  - ☐ Full-range of operation of the bucket from ground and bucket stations,
  - ☐ Knowledge of safety rules and regulations, and
  - ☐ Positioning of bucket.
- Equipment inspection procedures, and
- Outrigger deployment (if applicable).

High Reach Bucket Truck Operators shall be required to acquire a Commercial Drivers License - Class B with an air brake endorsement. Aerial Manlift Operators shall receive an informal annual review by their organization on equipment operation and safety procedures.

### 9.3.3 Experience Requirements

Workers requiring safety certification as an Aerial Manlift Operator shall complete the following:

- Certification as a High Worker,
- A two-hour classroom training program on the following:
  - ☐ Safety,
  - ☐ Emergency procedures,
  - ☐ General performance standard,
  - ☐ Requirements,
  - ☐ Pre-operational checks,
  - ☐ Safety related defects and symptoms for manlift devices, and
- A minimum of six hours of hands on training on each manlift device for which the worker requires certification.

## **9.4 DOCUMENTATION**

Civil servant employees who require safety certification on LaRC as an Aerial Manlift Operator shall process their request on NASA Langley Form 66. This form shall be used to document and certify that the qualifications of the worker, required in paragraph 9.3, have been satisfied. NPS contract personnel who require certification shall use a comparable form provided by their company for certification. The contractor's form shall provide for equivalent information as NASA Langley Form 66 and shall contain an approval process. The NASA Langley Form 61, shall be issued to certify workers. The NASA Langley 61 shall list, on the reverse side of the card, the specific manlift equipment the worker is certified to use. The worker shall have the card on-hand or readily accessible, as proof of his/her certification, while performing applicable tasks. Recertification shall be required once every four years and shall follow the same process as the original certification process.

## **9.5 MEDICAL SURVEILLANCE**

The work performed by Aerial Manlift Operators shall require medical surveillance with strict adherence to the LaRC OMEP's. Specifically, these positions shall require (1) pre-certification medical examinations and (2) medical examinations every four years at the time of recertification with a requirement to have a visual and hearing acuity test performed each year between recertification, in accordance with specified LaRC OMEP's. Candidates shall undergo and pass these medical examinations to be certified/recertified. Civil service employees shall have their required medical examinations at the LaRC OMC. Additionally, all contracts awarded on LaRC require that the contracting company medically certify its workers who will perform these duties.

### **9.5.1 Pre-Certification Medical Examination**

Personnel requiring certification as Aerial Manlift Operator shall first undergo and pass a medical examination in compliance with the LaRC OMEP's. This examination shall be accomplished through routine processing of NASA Langley Form 66 or the equivalent contractor's form. A medical disqualification shall result if a worker does not successfully complete the medical protocol.

### **9.5.2 Medical Examinations**

All Aerial Manlift Operators at LaRC shall undergo and pass a medical examination every four years at the time of their recertification, with visual and hearing acuity tests required each year in between recertification, in accordance with LaRC OMEP's.

**Chapter 10****10. CONFINED SPACE MONITOR****10.1 CERTIFICATION**

All individuals who evaluate entry to confined spaces and approve personnel to enter into and work within confined spaces shall be required to be properly trained and safety qualified as confined space monitors. The safety certification shall be completed in accordance with this document. A confined space is defined as a space that is not normally occupied by personnel and, by design, has limited or restricted openings for entry and exit, may lack adequate ventilation, may contain or produce "dangerous air contamination," and, therefore, may not be safe for entry. Confined spaces normally include, but are not limited to, boilers, furnaces, degreasers, storage tanks, test chambers, vessels, tunnels, compartments, pits, vats, sewers, underground utility vaults, manholes, certain locations within aircraft and spacecraft when not in flight, and any other location not specifically covered that is designated a confined space (see LPR 1740.2).

**10.2 RESPONSIBILITY**

It is the responsibility of each first-line supervisor and OFSH to ensure that personnel within their organization who function as Confined Space Monitors are trained and qualified.

**10.3 QUALIFICATIONS**

As a minimum, and prior to working as a confined space monitor, individuals shall receive training covering the following subjects:

- Hazard recognition,
- Proper respiratory protection for confined spaces,
- Use of atmospheric testing devices to include training on the manufacturers' specified field checks, normal use, and specific limitations of the equipment,
- Lockout and tagging procedures,
- Use of special equipment and tools,
- Emergency and rescue methods and procedures, and
- Emergency entry and exit procedures.

**10.4 DOCUMENTATION**

NASA Langley Form 60, "Confined Space Entry Permit," shall be used to document the certification of Confined Space Monitors. NASA Langley Form 60 shall be used by both government and contract personnel to certify that the qualifications and training required to become safety certified have been satisfied. NASA Langley Form 60 shall require the signature of the qualifying supervisor to approve the certification of a worker as a Confined Space Monitor.

## **10.5 MEDICAL SURVEILLANCE**

Employees who perform work as Confined Space Monitors shall not be required to undergo a medical examination prior to safety certification.